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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/610,148	07/05/2000	Etsuyoshi Kobori	40894-5411-1	4659

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EXAMINER

MAI, ANH D

ART UNIT PAPER NUMBER

2814

DATE MAILED: 08/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/610,148

Applicant(s)

KOBORI, ETSUYOSHI

Examiner

Anh D. Mai

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 15, 2002 has been entered.

Amendment

2. The amendment filed May 15, 2002 has been entered as Paper No. 6. Claims 15-18 have been amended.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 15-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 recites: "a first wiring layer composed of plurality of wiring patterns separate from each other embedded and wired on an upper surface of a first insulating layer which covers a surface of semiconductor substrate".

Insofar as the device is concerned, the layer that covers the insulating layer is no longer "wiring layer" because this layer is not a conductive layer. (See Figs. 1C, 2, 4A, 5, etc.,).

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A similar subject matter is also recited in claims 16-18.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 15-18 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Sudipto et al. (JP-10-233397), cited previously.

With respect to claim 15, as best understood by the examiner, Sudipto teaches a semiconductor device as claimed including:

a first wiring layer (28) composed of a plurality of wiring patterns separated from each other embedded in a first insulating layer (22) which covers the surface of a semiconductor substrate (10); and

a nonconductive layer (30) composing oxide of the first wiring layer (28), wherein the nonconductive layer (30) comes into contact with the first wiring layer (28) and covers the first insulating layer (22), and the top of the first wiring layer is not higher than the top of the first insulating layer (22), further wherein the thickness of the nonconductive layer (30) being arranged above the wiring layer is thicker than that of being arranged above the insulating layer (22). (See Fig. 1a).

With respect to claim 16, as best understood by the examiner, Sudipto teaches a semiconductor device as claimed including:

a substrate (10);

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a first insulating layer (22) covering the surface of the substrate;

a first wiring layer (28) including a plurality of wiring patterns separated from each other embedded in the first insulating layer (22), the first wiring layer (28) including a first material; and

a nonconductive layer (30) formed of oxide of the first material (28), the nonconductive layer (30) contacting with the first wiring layer (28) and covering the first insulating layer (22), wherein the top of the first wiring layer (28) is not higher than the top of the first insulating layer (22), and a thickness of the nonconductive layer (30) being arranged above the wiring layer (28) is thicker than that of being arranged above the insulating layer (22). . (See Fig. 1a).

With respect to claim 17, as best understood by the examiner, Sudipto teaches a semiconductor device as claimed including:

a substrate (10);

a first insulating layer (22) covering the surface of the substrate;

a first wiring layer (28) including a plurality of wiring patterns separated from each other embedded in the first insulating layer (22); and

a nonconductive layer (30) contacting with the first wiring layer (28) and covering the first insulating layer (22), the nonconductive layer includes oxygen ions,

wherein the top of the first wiring layer (28) is not higher than the top of the first insulating layer (22), and a thickness of the nonconductive layer (30) being arranged above the wiring layer (28) is thicker than that of being arranged above the insulating layer (22). . (See Fig. 1a).

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With respect to claim 18, as best understood by the examiner, Sudipto teaches a semiconductor device as claimed including:

a substrate (10);

a first insulating layer (22) covering the surface of the substrate (10);

a first wiring layer (28) including a plurality of wiring patterns separated from each other embedded in the first insulating layer (22); and

a nonconductive layer (30) that includes oxygen ions contacting with the first wiring layer (28) and covering the first insulating layer (22),

wherein the top of the first wiring layer (28) is not higher than the top of the first insulating layer (22), and a thickness of the nonconductive layer (30) being arranged above the wiring layer (28) is thicker than that of being arranged above the insulating layer (22). . (See Fig. 1a).

Product by process limitation:

The expression “formed by the oxidation of material composing the first wiring layer” (claim 15); “formed by the oxidation of the first material” (claim 16) are taken to be a product by process limitation and are given no patentable weight. A product by process claim directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See In re Fessman, 180 USPQ 324, 326 (CCPA 1974); In re Marosi et al., 218 USPQ 289, 292 (Fed. Cir. 1983); and particularly In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985), all of which make it clear that it is the patentability of the final structure of the product “gleaned” from the process steps, which must be determined in a “product by process” claim,

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and not the patentability of the process. See also MPEP 2113. Moreover, an old and obvious product produced by a new method is not a patentable product, whether claimed in "product by process" claims or not.

Response to Arguments

5. Applicant's arguments filed May 15, 2002 have been fully considered but they are not persuasive.

Applicant argues that Sudipto et al., neither teaches nor suggests at least a nonconductive layer formed by oxidation of material composing the first wiring layer.

However, as indicated in the rejection, Product-by-Process limitations are considered as such and are given no patentable weight.

Regarding the thicknesses, as shown in Fig. 1a, Sudipto clearly teaches an oxidation line (26) resides below the layer (31), thus, the thickness of the nonconductive layer (30) arranged above the conductive layer (28) is thicker than that of being arranged above the insulating layer (22). Therefore, the thickness of the nonconductive layer (30) met the claims limitation.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh D. Mai whose telephone number is (703) 305-0575. The examiner can normally be reached on 8:30AM-5:00PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A.M
July 29, 2002


OLIK CHAUDHURI
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TECHNOLOGY CENTER 2300